

SSK5608 Evolutionary Computing 3 (3+0)

This course covers theory and techniques in evolutionary computing including the adaptation of biological techniques. Optimization, modeling and simulation using different types of evolutionary algorithms in application domain are discussed

SSK5611 Massive Data Mining 3 (3+0)

The course covers knowledge discovery techniques for analyzing complex and massive data. Applications in mining various domain and data format are discussed

SKR5302 Advanced Distributed Computing 3 (3+0)

This course covers concept and technical requirements in developing distributed systems based on open system standards. Performance aspects in processing and management of distributed computing are discussed

SKR5306 Advanced Computer Networks 3 (3+0)

This course covers the latest and advanced concepts on local area network (LAN) and wide area network (WAN). This course also comprises explanation on computer network technology from several scopes that are wireless network, network security, multimedia network and network management. Network performance evaluation using quantitative model such as queue theory and flow-control mechanism are discussed

SKR5308 Real-Time Systems 3 (3+0)

This course covers the advanced topics of real-time systems in latest computing systems. It comprises explanation on the concepts and design for reliability, and fault-tolerance techniques that will be evaluated for its respective effectiveness

SKR5501 Performance Modeling of Communication Networks 3 (3+0)

This course covers the various aspects of modeling and simulation of wired and wireless communication networks highlighted for the purpose of performance evaluation comparison. Probability and queuing theories are used to evaluate the network simulation system performance. Concepts and elements for developing simulation system are discussed

SKM5301 Advanced Computer Graphics 3 (3+0)

This course covers graphics computer techniques, analyzing and shows the problem solving characteristics of developing the computer graphics. The solution can be done using algorithm as well as advanced modeling techniques

SKM5303 Computer Vision 3 (3+0)

This course covers computer vision concepts, image processing and pattern recognition. Analysis and decision making methods in solving problems related to computer vision are discussed

SSK5989 Dissertation 10 (10+0)

The course covers the preparation of proposal, implementation, development and writing of research dissertation related to computer science

CONTACT LIST

APPLICATION FOR ADMISSION

School of Graduate Studies
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For further information on academic programmes, please contact:

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Master Programme Coordinator
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Faculty of Computer Science and Information Technology

Universiti Putra Malaysia

POSTGRADUATE PROGRAMME
BY COURSEWORK

MASTER OF COMPUTER SCIENCE



PROGRAMME BY COURSEWORK Programme : Master of Computer Science

Introduction

The Master of Computer Science programme is 40 credits postgraduate programme by coursework. It offers an opportunity for advanced studies and career development in the field of computer science. The objective of this programme is to produce graduates with new technology in the field of computer science.

Entrance Requirements

- An applicant should have a bachelor's degree or equivalent, in computing, science and technology or related to computing, with a minimum CGPA 2.750; or
- A Bachelor's degree or equivalent, in computing, science and technology or related to computing with a CGPA of 2.500 – 2.749 may be considered based on a minimum of 1 year of work experience in the related field; or
- A Bachelor's degree or equivalent, in computing, science and technology or related to computing with a CGPA of below 2.500 must have a minimum of 5 years of relevant experience.

English Language Requirement

International applicants must have obtained a minimum score of 550 for the TOEFL Paper-based Test (Academic Version) or Band 6.0 for IELTS (Academic Training), or 79 – 80 for TOEFL Internet-based Test (Academic Version) or level 109 for CIEP at ELS Language Centre.

Programme Offered by Semester

First and Second Semester of every year.

Programme Requirements

Credits Requirement for Graduation

In order to graduate, students must have achieved at least 40 credits. The minimum cumulative average is 3.00. The minimum credits distribution for this programme is as follows:

| | |
|--------------------|-------------------|
| Compulsory courses | 21 credits |
| Dissertation | 10 credits |
| Elective courses | 9 credits |
| Total | 40 credits |

(a) COMPULSORY COURSES

Listed below are the compulsory courses:

| Course Code | Course Name | Credit |
|-------------|---------------------------------------|---------|
| SSK5090 | Research Methods in Computer Science | 3 (3+0) |
| SSK5212 | Big Data Technology | 3 (3+0) |
| SSK5210 | Empirical Methods in Computer Science | 3 (3+0) |
| SSK5221 | Internet of Things | 3 (3+0) |
| SSK5500 | Security in Computing | 3 (3+0) |
| SSK5603 | Machine Learning | 3 (3+0) |
| SKR5306 | Advanced Computer Networks | 3 (3+0) |

(b) DISSERTATION

| Course Code | Course Name | Credit |
|-------------|--------------|-----------|
| SSK5989 | Dissertation | 10 (0+10) |

(c) ELECTIVE COURSES

Choose three (3) courses only:

| Course Code | Course Name | Credit |
|-------------|--|---------|
| SKR5302 | Advance Distributed Computing | 3 (3+0) |
| SKR5308 | Real-Time Systems | 3 (3+0) |
| SKR5501 | Performance Modeling of Communication Networks | 3 (3+0) |
| SKM5301 | Advanced Computer Graphics | 3 (3+0) |
| SKM5303 | Computer Vision | 3 (3+0) |
| SSK5606 | Advanced Natural Language Processing | 3 (3+0) |
| SSK5608 | Evolutionary Computing | 3 (3+0) |
| SSK5611 | Massive Data Mining | 3 (3+0) |
| SSK5251 | Data Analysis and Statistical Inference | 3 (3+0) |
| SSK5102 | Big Data Computing | 3 (3+0) |
| SSK5220 | Cyber-Physical Systems Modeling | 3 (3+0) |
| SSK5223 | Pervasive Computing for Cyber-Physical System | 3 (3+0) |

Tuition Fees

The fee structure for this programme consists of basic fee and credit-based fee:

(a) BASIC FEE

| Semester | Malaysians | International Students |
|---------------------------------|-------------|------------------------|
| First Semester | RM 1,250.00 | RM2,300.00 |
| Second and Subsequent semesters | RM 1,000.00 | RM2,050.00 |

(b) CREDIT-BASED FEE

| Student | Amount | Credit | Total Amount |
|---------------|---------------------|--------|--------------|
| International | RM400.00 per credit | 40 | RM16,000.00 |
| Local | RM250.00 per credit | | RM10,000.00 |

Course Synopsis

SSK5090 Research Methods in Computer Science 3 (3+0)

This course introduces students to the research methods in computer science and gives ideas on how to plan, organize and use the available resources efficiently in helping them in their research

SSK5210 Empirical Methods in Computer Science 3 (3+0)

The course covers a detailed study of the scientific process using empirical method in experiment. Testing and hypothesis formulation steps based on the selected experimental design are discussed

SSK5220 Cyber-Physical Systems Modeling 3 (3+0)

This course covers the principles of cyber-physical systems and their related components. It focuses on modeling, which includes design and analysis of cyber-physical system. Concepts of hybrid and dynamic systems as well as their effectiveness are discussed

SSK5221 Internet of Things 3 (3+0)

This course covers technical aspects that are used in development, processing and managing Internet of Things paradigm. IoT services and related applications are also discussed

SSK5223 Pervasive Computing for Cyber-Physical System 3 (3+0)

The course covers development techniques of pervasive computing application for cyber-physical system. It consists of software and hardware of the pervasive system platforms, their environments, and development approaches. The trends of pervasive application and its impacts on future computing applications and society are discussed

SSK5251 Data Analysis and Statistical Inference 3 (3+0)

This course covers statistical methods and inference. Methods of effective data usage, collection, analysis and inference for real world phenomena are discussed

SSK5212 Big Data Technology 3 (3+0)

This course covers the technical aspects that are used in processing and managing big data. The big data architecture and technologies for the collection, storage, integration, processing and applications of big data are discussed

SSK5102 Big Data Computing 3 (3+0)

This course covers the programming structures and algorithms for large-scale data processing and visualization. It includes the usage of big data eco-system for large-scale data storage and computation. Machine learning algorithm and data analytics are discussed

SSK5500 Security in Computing 3 (3+0)

This course covers protection methods against various attacks on legitimate users, including necessary actions to track, document, and prevent the threats. Awareness on security threats and vulnerabilities as well as best practices in computer security are discussed

SSK5603 Machine Learning 3 (3+0)

This course covers the concepts and types of machine learning namely supervised, unsupervised and reinforcement learning. Algorithms for pattern recognition, classification, optimization and complex neural network architecture are emphasized

SSK5606 Advanced Natural Language Processing 3 (3+0)

This course covers the concept of natural language modeling and processing using formal method. Syntactic and semantic decomposition besides approaches in knowledge and thinking representations are also discussed, including using the latest method, word embedding